USE CASE

Separation without the pressure challenge

This case focuses on Innopipe installed at an Alberta-based production testing site and at a Western Canadian gas plant.

Conventional separators require pressure differentials to do their job. A cyclone separator needs high flowing pressure to work, and a scrubber vessel slows the gas and loses pressure. Two Canadian operators selected Innopipe because it removes liquids without penalty. At a large gas plant, pressure loss was insignificant and no extra compression was needed. A well-testing company found Innopipe separated fluids efficiently at lower pressures where a cyclone would struggle.

Quick Facts

Industry	Gas processing
Location	Western Canada
Challenge	Remove liquids from gas without losing pressure

Solution	Innopipe inline separators: units downstream of the plant's process towers, and a trailer-mounted 3" x 8" sour-service well test separator rated 1,440 psi.
Timeline	Gas plant units were delivered within 8 weeks of drawing approval and installed during a scheduled turnaround. Well-testing units delivered 4 weeks after drawing approval.
Results	There was insignificant pressure loss with no added compressor boost, 60% vessel cost savings, and well tests with no operating problems.

Challenge

Every separator incurs some pressure loss but pressure loss costs money. Downstream the loss must be made up by more compressors, using more horsepower and fuel.

Gas plant: One of Canada's largest producers needed to remove glycol and amine carry over from process towers. The standard fix, a treated-gas after-scrubber, slows the whole gas stream and causes an unwanted pressure drop. That means extra booster compression for the life of the plant.

Well testing: An Alberta-based well-testing company measures water-gas ratios on gas wells. A standard recycle cyclone separator only works well at higher flowing pressures, because pressure is what creates the cyclone effect. Cyclone Separation suffers at lower pressures.

Both operators needed effective separation without giving up pressure.

The Solution

Innopipe doesn't slow the gas down or spin it. In transmission speed flow, liquid travels as a film along the pipe wall. Engineered slots let that film exit through the wall into a collection vessel, while the gas

continues through what is essentially straight pipe. Piggable units typically lose under 1 psi of pressure, and non-piggable units 3 to 5 psi.

Gas plant: Innopipe units were installed downstream of the process carryover towers and replaced the conventional after-scrubber. They were delivered within 8 weeks of drawing approval and installed during a planned turnaround.

Well testing: The well-testing company ran a trailer-mounted 3" x 8" two-phase Innopipe with an 8" water leg, rated for 1,440 psi sour service. It tied in upstream or downstream of the meter run, with a vortex gas meter and a fluid totalizer. Since the slots don't rely on pressure, separation stays efficient at lower pressures.

Results

The solution delivered measurable benefits, including:

- Insignificant pressure loss at the plant: no additional compressor boost was required, so there was no ongoing horsepower or fuel penalty.
- Efficient separation at lower pressures: Well-testing reports show Innopipe's main benefit is efficient fluid removal at lower pressures, where a cyclone needs higher flowing pressure.
- Reliable well testing: gas rates of 35 E^3m^3/d (1.236 MMcf/d) with virtually no operating problems.
- 60% capital savings: the process plant saved 60% of budgeted vessel costs compared with conventional vessels, and similar gains were made vs cyclone test separators.
- Proven and repeated: The well-testing company had three units that operated for 10 months, and then bought two more.
- Production maintained: the plant resumed high-volume gas production while recovering its glycol and amine.

Key Outcome

Whether at a gas plant or on a well test, the results are the same – Innopipe successfully removed the liquid without impacting pressure. That means no extra compression, no reliance on high flowing pressure, and dependable separation at a fraction of conventional vessel cost.

Customer quote: “The main benefit of the Innopipe design (the engineered slots), is efficient fluid removal at lower pressures. A standard recycle cyclone design requires higher flowing pressures (to create cyclone effect) for optimum fluid separation.” (well-testing company)